

CLAIMS

What is claimed is:

1. A method, in a computer-implemented optimization process based on a genetic
2 model, for setting a characteristic of a system to be optimized, comprising:
associating with the characteristic a set of values and a first index, the
4 first index corresponding to a gene within a chromosome, the gene comprising
a second index corresponding to a particular value in the set of values; and
6 setting the characteristic in accordance with the particular value.
2. The method of claim 1, wherein a plurality of characteristics are associated with
2 the same first index.
3. The method of claim 1, wherein a first characteristic and a second characteristic
2 are associated with the same first index and, for each applicable value of the
second index, the particular value in the set of values associated with the first
4 characteristic and the particular value in the set of values associated with the
second characteristic are related by a predetermined ratio.
4. The method of claim 1, wherein associating with the characteristic a set of values
2 and a first index comprises accessing a data structure, the data structure
comprising a plurality of entries, each entry corresponding to a characteristic of
4 the system to be optimized, each entry comprising the associated first index and
set of values.

5. The method of claim 1, wherein the system to be optimized comprises an
2 integrated circuit.
6. The method of claim 5, wherein the characteristic comprises one of a cell type, a
2 transistor model, and a transistor width.
7. A method, in a computer-implemented optimization process based on a genetic
2 model, for mapping the characteristics of a system to be optimized to the genes of
a chromosome, the method comprising:
4 generating a lookup table having a plurality of entries, each entry
corresponding to a characteristic of the system to be optimized, each entry
6 comprising a set of values and a first index, the first index corresponding to a
gene in the chromosome, the gene comprising a second index corresponding to
8 a particular value in the set of values.
8. The method of claim 7, wherein a plurality of entries have the same first index.
9. The method of claim 7, wherein the entries corresponding, respectively, to a first
2 characteristic and a second characteristic have the same first index and, for each
applicable value of the second index, the particular value in the first entry and the
4 particular value in the second entry are related by a predetermined ratio.
10. The method of claim 7, wherein the system to be optimized comprises an
2 integrated circuit.

11. The method of claim 10, wherein at least one characteristic comprises one of a

2 cell type, a transistor model, and a transistor width.

12. A system programmed to perform the following method:

2 generating, in a computer-implemented process based on a genetic
model, a chromosome, the chromosome comprising a plurality of genes;

4 accessing a data structure, the data structure comprising a plurality of
entries, each entry corresponding to a characteristic of a device to be

6 optimized, each entry comprising a set of values and a first index, the first
index corresponding to a gene within the chromosome, the gene comprising a

8 second index corresponding to a particular value in the set of values; and

setting at least one characteristic in accordance with the particular
10 value.

13. The system of claim 12, wherein a plurality of characteristics are associated with

2 the same first index.

14. The system of claim 12, wherein a first characteristic and a second characteristic

2 are associated with the same first index and, for each applicable value of the
second index, the particular value in the set of values associated with the first

4 characteristic and the particular value in the set of values associated with the
second characteristic are related by a predetermined ratio.

15. The system of claim 12, wherein the device to be optimized comprises an

2 integrated circuit.

16. The system of claim 15, wherein the characteristic comprises one of a cell type, a
2 transistor model, and a transistor width.

17. A system for optimizing a device using a computer-implemented process based on
2 a genetic model, comprising:

means for generating a chromosome, the chromosome comprising a

4 plurality of genes;

means for accessing a data structure, the data structure comprising a

6 plurality of entries, each entry corresponding to a characteristic of the device

to be optimized, each entry comprising a set of values and a first index, the

8 first index corresponding to a gene within the chromosome, the gene

comprising a second index corresponding to a particular value in the set of

10 values; and

means for setting at least one characteristic in accordance with the

12 particular value.

18. A computer-readable storage medium containing program code for setting a
2 characteristic of a system to be optimized according to a process based on a
genetic paradigm, comprising:

4 a first code segment configured to associate with the characteristic a

set of values and a first index, the first index corresponding to a gene within a

6 chromosome, the gene comprising a second index corresponding to a

particular value in the set of values; and

8 a second code segment configured to set the characteristic in
accordance with the particular value.

19. The computer-readable storage medium of claim 18, wherein the first code
2 segment associates a plurality of characteristics with the same first index.

20. The computer-readable storage medium of claim 18, wherein a first characteristic
2 and a second characteristic are associated with the same first index and, for each
applicable value of the second index, the particular value in the set of values
4 associated with the first characteristic and the particular value in the set of values
associated with the second characteristic are related by a predetermined ratio.

21. The computer-readable storage medium of claim 18, wherein the first code
2 segment associates with the characteristic a set of values and a first index by
accessing a data structure, the data structure comprising a plurality of entries, each
4 entry corresponding to a characteristic of the system to be optimized, each entry
comprising the associated first index and set of values.

22. The computer-readable storage medium of claim 18, wherein the system to be
2 optimized comprises an integrated circuit.

23. The computer-readable storage medium of claim 22, wherein the characteristic
2 comprises one of a cell type, a transistor model, and a transistor width.